REMARKS

Claims 1-12 are pending and all have been rejected under 35 U.S.C. § 102(b).

In response, Applicants respectfully traverse and submit that all pending claims 1-12

present subject matter that is patentable over the prior art of record, and, in view of

the following remarks, request that the Examiner reconsider the application.

REJECTIONS UNDER 35 U.S.C. § 102 - Frank

In paragraphs 2, 3, and 4 of the Final Office Action, the Examiner rejected

claims 1-12 under 35 U.S.C. § 102 (b) as being anticipated by U.S. Patent No.

5,297,265 to *Frank et al.*

The Examiner asserted that "[a]s to claims 1-12, Frank discloses the method,

system, and medium as recited, including diving a memory page into a plurality of

relocation blocks ("subpages"), and using a relocation table (cache directories) to

convert a memory page address to a relocation address. See Figure 5, and column 11

line 22 through column 12 line 68."

The Examiner thus equates *Frank*'s page to Applicant's page, *Frank*'s

subpages to Applicants' relocation blocks, and *Frank*'s cache directories to

Applicants' relocation table. Applicants respectfully submit that, if *Frank*' page is

equivalent to Applicants' page, *Frank*'s subpages are equivalent to Applicants'

relocation blocks, and *Frank*'s cache directories are equivalent to Applicants'

relocation table, then *Frank*'s *cache directories* must be used to locate the *subpages*

because Applicants' *relocation table* is used to locate the *relocation blocks*.

However, *Frank*'s *cache directory* is associated with *pages*, not *relocation blocks*,

which have been divided from a page because *Frank*'s cache directory records the

"*association between pages,*" (col. 12 lines 11-24, emphasis added). As a result,

Frank does not disclose *how* the *cache directory* can be used to locate the *relocation*

blocks as in Applicants' claim 1. In fact, the Examiner, in the Response to Arguments, paragraph 5, admitted that "the caches [of Frank] store subpages, and that the *cache directory* records the *association between pages* in the cache and the system page . . . " (emphasis added). Further, *Frank* also discloses that the cache directory acting as a content-address memory allows a cache to locate a *page*: "[e]ach *cache directory* 46A acts as a content-addressable memory. This permits a cache to locate a descriptor for a particular *page* of SVA space . . . " (col. 12, lines 31-33, emphasis added).

In paragraph 5, the Examiner explained "[t]he cache may be searched for a corresponding entry for a particular system page (col. 12 lines 31-45), which for each individual cache may be only a subpage of the page, and thus equivalent to a relocation address converted from the system page address using a table (the directories)." Applicants respectfully submit that, in claim 1, "for at least one memory page" of the memory, the page has *more than one* relocation block because that page is divided into *a plurality of relocation blocks* (Amendment dated June 9th, 2003, claim 1, lines 3 – 4).

In paragraph 5, the Examiner responded "[t]he argument that Frank's pages must be represented by whole and not in part is not differentiated by the present claim language since one memory system reads on 'one or a plurality.'" In paragraph 4, the Examiner also asserted "[t]he additional limitation that relocation blocks are placed in one or plural memory systems is disclosed since they are place [sic] in a memory system as cited hereinabove." Applicants respectfully submit that claim 1 is further distinguished from Frank because claim 1 recites one or a plurality of *relocation blocks* of a page. Within the page from which the blocks are divided, the blocks do not have to stay at the original location in the page. The blocks can be moved from one location to another location. Additionally, these blocks do not have to stay within

the boundary of a page from which the blocks are divided. Being identified by the entries of the relocation table, these relocation blocks can be at different locations as long as these locations can be pointed to by the entries. As a result, these blocks can be stored in *one or a plurality of memory systems*. In contrast, *Frank* cannot afford the flexibility of subpages at various locations. Within a boundary of a page, a subpage cannot be moved from one location to another location. Further, every subpage of a page must stay within the page's boundary. Therefore, *Frank*, when being involved with a subpage, is involved with the whole *page*. That is why "[e]ach page [that includes subpages] of SVA space is either *entirely* represented in the system or *not represented at all*" (col. 11, lines 27-29, emphasis added).

The Examiner, in paragraph 4, also asserted "the additional limitation that relocation blocks are loaded in memory if not there is also disclosed, which is a typical load on a cache miss of the subpage (see col. 16 lines 1-13)." Applicants respectfully submit that, as embodiments of the invention provide relocation blocks divided from a page, the relocation blocks are involved when the data in the blocks is involved. As such, claim 1 recites: "if the data intended for a memory access is not in physical memory, then, loading in physical memory, one or a plurality of *relocation blocks* . . ." (claim 1, emphasis added). Further, as explained above, depending on embodiments and/or application data in the blocks, these blocks could be in various memory systems. In contrast, *Frank*, which cannot afford the flexibility of relocation blocks, must involve the *whole page*. Consequently, even if information only in a subpage is accessed, the *whole page* must be loaded (col. 36, lines 53-55).

Because claim 1 recites limitations patentably distinguished from *Frank*, claim 1 is patentable.

Claims 2-4 depend directly or indirectly from claim 1 and are therefore

patentable for at least the same reasons as claim 1. Claims 2-4 are also patentable for

their additional limitations as appropriate.

Claims 5-8 and 9-12 recite limitations corresponding to claims 1-4, and are

therefore patentable for at least the same reasons as claims 1-4.

Regarding dependent claims, the Examiner asserted "the cited section shows

that the virtual address is converted to the extent recited, the relocation blocks may be

allocated (in the caches) upon receiving the address, and each entry corresponds to a

block as recited." Applicants respectfully submit that careful reviews of the cited

paragraph do not reveal discussion of virtual address, let a lone "converting a virtual

address of the data to the address of the memory page" as recited in claim 1. Nor do

Frank's cited paragraphs disclose "allocating the plurality of relocation blocks upon

receiving the address of the memory page." As disclosed in an embodiment in

Applicants' Specification, "when operating system 170 allocates memory pages,

relocations blocks 220 corresponding to those pages are created" (page 10, lines 23-

24).

SUMMARY

In conclusion, Applicants respectfully submit that pending claims 1-12 clearly present subject matter that is patentable over the prior art of record, and therefore request that the Examiner withdraw the rejections of the pending claims and pass the application to issue. If the Examiner has questions regarding this case, the Examiner is invited to contact Applicants' undersigned attorney.
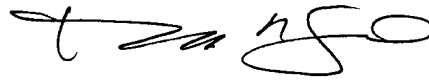
Respectfully submitted,

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